



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,143	04/03/2001	Yoshiyuki Yasui	003510-089	8922

7590 02/25/2005

Platon N. Mandros  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, VA 22313-1404

EXAMINER
----------

KING, BRADLEY T

ART UNIT	PAPER NUMBER
----------	--------------

3683

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/824,143

**Applicant(s)**

YASUI ET AL.

**Examiner**

Bradley T King

**Art Unit**

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2-8 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0825080.

EP 0825080 discloses all the limitations of the instant claims including: speed detecting means for detecting wheel speeds of respective wheels of a vehicle; road surface mu slope estimating means 12 for, on the basis of the detected wheel speeds 10, estimating for the respective wheels slopes of a coefficient of friction mu between the wheels and a road surface as road surface mu slopes; control means for, on the basis of the road surface mu slopes estimated for the respective wheels by the road surface mu slope estimating means, distributing braking forces to the respective wheels by controlling the braking force of each wheel; and wherein on the basis of the detected wheel speeds, the road surface mu slope estimating means estimates slopes of braking forces with respect to wheel slip speeds as the road surface mu slopes for the respective wheels, and the control means controls a braking torque of a wheel which is an object of control on the basis of the road surface mu slope of the wheel which is an

object of control and the road surface  $\mu$  slope of a reference wheel among the road surface  $\mu$  slopes estimated by the road surface  $\mu$  slope estimating means. Note the embodiment of figure 42, steps 408 and 414. The low  $\mu$  wheel is the reference wheel. If the  $\mu$  difference is less than a predetermined value, the high  $\mu$  wheel (object of control) is controlled based on its  $\mu$  slope, otherwise it is controlled based on the  $\mu$  slope of the reference wheel.

Regarding claim 3, EP 0825080 estimates the  $\mu$  slope of a reference wheel and then performs follow-up control on a wheel which is the object of control according to wheel speed (and therefore wheel slip) since the object wheel is assumed to have the same  $\mu$ . When there is variation of the wheel speeds, there is also a variation in the road  $\mu$  slope between the wheels and the device increases or decreases the braking force so that the speeds are equal. See the description of feed-back control on page 44. Note the claim language describes the behavior with respect to variations in  $\mu$  slopes, but fails to positively recite any direct measurement and comparison of the  $\mu$  slopes.

Regarding claim 5, see page 17 last paragraph. EP 0825080 teaches the use of the rear wheels as reference wheels.

Regarding claims 6-7, the braking device of EP 0825080 will behave as claimed when the reference wheel happens to be on the inside of a turn (or outside for claim 7). The claim language fails to require any turn recognition.

Regarding claim 8, see figure 43.

### ***Response to Arguments***

Applicant's arguments filed 12/08/2004 have been fully considered but they are not persuasive.

Regarding Ono et al, please note that the step of micro-excitation ABS control in the embodiment of figure 43 includes an estimation of the  $\mu$  slopes of the wheel. For instance, see page 42 line 54 to page 43 line 6. The micro gains  $g_d$  are equivalent to friction torque gradients (defined as  $\mu$  slopes in the instant application). See page 16, lines 27-28. The high  $\mu$  wheel of Ono et al is interpreted as the object wheel. When the vehicle is on a non-split  $\mu$  surface, the object wheel is controlled based on its  $\mu$  slope  $g_s$  so that  $g_s$  reaches a reference slope  $g_d$  (step 414). When the vehicle is on a split  $\mu$  surface, the high  $\mu$  wheel is controlled in follow-up control (step 410) which is a function of the  $\mu$  slope  $g_s$  of the low  $\mu$  wheel. It is maintained that these features read upon the recited the control means which "controls a braking torque of a wheel which is an object of control on the basis of the road surface  $\mu$  slope of the wheel which is an object of control and the road surface  $\mu$  slope of a reference wheel among the road surface  $\mu$  slopes estimated by the road surface  $\mu$  slope estimating means."

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 3683

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley T King whose telephone number is (703) 308-8346. The examiner can normally be reached on 11:00-7:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (703) 308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3683

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BTK

*Robert A. Siconolfi* 2/21/06  
ROBERT A. SICONOLFI  
PATENT EXAMINER